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# Exploration of the Relationship Between Moral Judgment Development and Crystallized Intelligence

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EXPLORATION OF THE RELATIONSHIP BETWEEN MORAL JUDGMENT  
DEVELOPMENT AND CRYSTALLIZED INTELLIGENCE

A Thesis  
Presented to  
The Faculty of the Department of Psychology  
Western Kentucky University  
Bowling Green, Kentucky

In Partial Fulfillment  
Of the Requirements for the Degree  
Master of Arts

By  
Kristy L. Jones

August 2004



EXPLORATION OF THE RELATIONSHIP BETWEEN MORAL JUDGMENT  
DEVELOPMENT AND CRYSTALLIZED INTELLIGENCE

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# EXPLORATION OF THE RELATIONSHIP BETWEEN MORAL JUDGMENT DEVELOPMENT AND CRYSTALLIZED INTELLIGENCE

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Recent studies have reported different findings about how moral judgment as defined by the Defining Issues Test (DIT; Rest, Narvaez, Bebeau, & Thoma, 1999) relates to verbal intellectual ability. For example, Sanders, Lubinski, and Benbow (1995) argued that DIT scores are reducible to indices that represent verbal intellectual ability. Thoma and his colleagues (Derryberry, Thoma, Narvaez, & Rest, 2000; Thoma, Derryberry, & Narvaez, 2003; Thoma, Narvaez, Rest, & Derryberry, 1999) found support that DIT scores and indices of verbal intellectual ability are separate sources of information. In considering this relationship, these previous studies have most often referred to grade point average (GPA), American College Test (ACT), and Scholastic Aptitude Test (SAT) scores in describing verbal intellectual ability. As such, this research has been vague in defining what is meant by verbal intellectual ability. The present study recognizes Cattell and Horn's (1978) conception of crystallized intelligence as similar to the construct that the aforementioned research has considered. Therefore, the present study was designed to gain a better understanding about the nature of DIT scores in considering how they relate to an actual assessment of crystallized intelligence.

For the current study, 117 participants provided complete data across two sessions. In the first session, participants were given the DIT and the Attitudes Toward

Human Rights Inventory (ATHRI; Getz, 1985). In the second session, participants were assessed using the Kaufman Adolescent and Adult Intelligence Test (KAIT; Kaufman & Kaufman, 1993).

Results support the idea that DIT and KAIT scores are separate sources of information and influence ATHRI scores differently. Results also show that crystallized intelligence scores contribute to moral judgment scores though there is much variance that is unshared between these two constructs. Thus, the present study affirms the construct validity of the DIT but points to a role for crystallized intelligence in the measurement of moral judgment. Based on the evidence from the current study, there is evidence that upholds an important approach to measuring moral judgment development. Furthermore, there is little evidence supporting queries (e.g., Lykken, 1991) that have maintained that measurements of popular psychological constructs are the product of intellectual ability.



## Introduction

Moral judgment is a construct that has been successfully measured for many years. According to Rest (1979), moral judgment is the product of reasoning about “the basic terms of cooperation” (p. 18) and is the means by which we interpret and make decisions about rules in society and the principles that regulate this society. The foundation for moral judgment research can be traced back to Kohlberg (1958) and his proposition that moral thinking is not based on decisions, but rather on the reasoning behind those decisions. Kohlberg proceeded in his research to identify a hierarchy of developmental stages and levels of moral reasoning that form the basis for the decisions or judgments that individuals make when faced with a moral situation.

Kohlberg (1958; Colby & Kohlberg, 1987) divided the development of moral reasoning into three levels and six stages. The three levels are: preconventional thinking, conventional thinking, and postconventional thinking. There are two stages found in each of these three levels. The two stages of the preconventional level are the punishment and obedience and instrumental relativist orientations. In each of these stages, moral reasoning focuses primarily on the self. For example, an individual makes moral decisions as a means for avoiding punishment during the first stage and makes moral decisions according to how the self is benefited in the second stage. The conventional level includes the interpersonal concordance and law and order orientations. Moral reasoning during the conventional level focuses upon the standards, rules, and conventions of others. As such, an individual makes moral decisions in order to please others and gain their approval during the third stage and makes decisions according to the conventions that social infrastructure mandates during the fourth stage. The

postconventional level includes the social-contract legalistic and universal ethical principles orientations. At this level, moral reasoning goes beyond the conventions of others, and the individual focuses upon the principle for which a convention is meant to serve. As such, individuals make moral decisions according to rights and principles guaranteed in the social contracts responsible for framing a society's conventions during the fifth stage. Moral decisions are made according to universal ethical principles that a person has adopted and conceived as fundamental to humanity as a whole at the sixth stage.

In order to assess the moral reasoning behind an individual's moral judgment, Kohlberg developed a set of moral dilemmas that challenged individuals to reflect upon their thoughts about ethical situations posed in each dilemma. He named this assessment the Moral Judgment Interview (MJJ; Colby & Kohlberg, 1987). Based on the responses an individual gives to each of the presented dilemmas, the individual is assigned to one of Kohlberg's six identified stages of moral reasoning. Kohlberg's MJJ was the first extensive attempt to assess and categorize the moral thinking of individuals across the lifespan.

Following Kohlberg, Rest (1979) sought to develop a different means for assessing moral judgment development. According to Rest (1979), the MJJ was flawed in its assessment of the construct. Particularly, he felt that the interviewer was taking too big a leap from the respondent's answers to assigning a developmental stage and that too much was inferred (Rest, 1979). Furthermore, Rest (1979) maintained that individual aspects of participant verbal ability such as vocabulary usage and complexity of response articulation were overly influential in the assignment of developmental stages. For this

reason, Rest (1979) and others (Martin, Shafto, & Vandeinse, 1977) have questioned the validity and reliability of the MJJ.

One of the main influences on Rest's (1979) approach was the dissertation of Lockwood (1970). Lockwood asked individuals to choose various statements that reflected their thoughts about particular dilemmas of Kohlberg's MJJ. In doing so, Lockwood noted that participants were drawn to statements that reflected their assessed level of moral development. This approach could be described as more of a cognitive approach over a semantic approach, focusing more on activation than on articulation (Thoma, 2002). Using Lockwood's findings as a base, Rest developed a set of short statements regarding each of the dilemmas from Kohlberg's MJJ that echoed each of Kohlberg's identified stages along with several nonsense statements (Thoma, 2002). From this, Rest was successful in establishing his instrument, known as the Defining Issues Test (DIT).

On the DIT, the task for the participant is to read six of the Kohlbergian moral dilemmas and make a decision or judgment about what the main character in each dilemma should do. Following this task, the participant rates and ranks statements that Rest (1979) developed regarding each dilemma. Each statement is rated and ranked according to the appeal that each statement had for the participant in deciding what the character should do. As Rest discussed, the statements following each dilemma are short; he avoided using cues that could influence a preference for one item over another. He also felt that shorter statements were necessary for each of the stages he was trying to distinguish. By using sentences of a similar length and vocabulary, the test taker would not be able to distinguish levels based on the "eyeball technique." These shorter items

resulted in less discrimination of the items. It has been noted that Rest was very concerned about comprehension in his measure (Thoma, 2002). He wanted to create an assessment whereby the administrator could look at a participant's ranking of the statements and have a quick means of placing that person into a stage, yet not something that the participant could discern easily (Thoma, 2002). The end result was a series of statements tapping in to varying levels of moral reasoning that could not be easily discerned by the reader. Furthermore, Rest's efforts in developing his instrument have resulted in what has proven to be an accurate device of recognition and activation unlike Kohlberg's MJI (Rest, Narvaez, Bebeau, & Thoma, 1999).

In advancing the DIT, it became apparent that the term *stage* did not fit the data that were collected. Kohlberg and other stage theorists such as Piaget characterized development as a result of the advancement through specific "hard" stages; that is, an individual was thought to be in one specific stage at a time. Upon moving to the next stage, use of reasoning characteristic of the previous stage is abandoned. Findings from DIT research suggested that though a modal and preferred level is obvious, characteristics of other levels of reasoning are still observed. As such, Rest (Rest et al., 1999) ultimately maintained that it was not stages but schemata that were tapped into through the use of the DIT. DIT research has therefore led to a re-conceptualization of the nature of moral judgment development for Rest. Rather than hard stages, Rest maintained that the DIT measured an individual's usage of three distinct moral judgment schemata. Such a take on the development of moral judgment echoed more contemporary theories of human development (Walker, 2002).

The three schemas the DIT identifies include the personal interest, maintaining norms, and postconventional schemas (Rest et al., 1999). These schemas are described as recurring representatives and are recalled with new exposure to the event. The personal interest schema represents the lower stages of Kohlberg's theory – specifically the second and third stages. This schema is said to focus on aspects associated with and important to the self. The maintaining norms schema echoes Kohlberg's stage 4 and considers how people work together. This schema recognizes how laws work and the importance of considering others. The postconventional schema is reflective of stages 5 and 6 of Kohlberg's theory and focuses upon the role of universal rights, principles, and conceptions of justice and fairness. It is in this schema where thinking on a broader base is necessary. The whole is considered, and fairness, reciprocity, and equality all play a role in this schema. It is at this point that right takes precedence over what is wanted or that which is the convention.

Although all three schemas are considered in making a moral judgment, DIT research has revealed that particular schemas are emphasized during moral judgment development (Rest et al., 1999). Initially, one emphasizes the importance of the personal interest schema while the role of the maintaining norms and postconventional schema are minimally referenced. As moral judgment ability is advanced, the role of the personal interest schema lessens, the maintaining norms schema is most emphasized, and the presence of the postconventional schema starts to advance in making moral judgments. As moral judgment development peaks, the maintaining norms schema is used less and the postconventional schema is emphasized.

The DIT generates several important indices of moral judgment development. One of the more important indices is the N2 score, which refers to the degree to which an individual refers to postconventional reasoning in making moral judgments. This score is derived as a result of an individual's rating and ranking of items on the DIT. For example, those who consistently rank postconventional items highly and attribute little importance to maintaining norms and personal interest items have high N2 scores. Those who do not rate and rank postconventional items highly and who emphasize the importance of personal interest items have low N2 scores (Rest et al., 1999). Another important score is the U or utilization score (Thoma, Rest, & Davison, 1991). This index refers to the degree to which schema-based reasoning is reflected in or referenced in making dilemma choices. The higher the score on the U-Score index, the greater the relationship between choice of action and endorsement of items (Rest et al., 1999).

One other index that has been developed is the Type index. This index identifies an individual's modal moral judgment schema and therefore is an important indicator of individual moral judgment development. Additionally, this indicator reveals the relative importance of a particular schema in making a moral judgment in noting whether a person is consolidated at a specific schema (i.e., one schema tends to predominate moral reasoning) or transitional among schema (i.e., though modal schema is clear, so too is the influence of the other two schema). Seven types are noted. Type 1 is an individual identified as consolidated at the personal interest schema. Types 2 and 3 are transitional phases between the personal interest schema and the maintaining norms schema. The difference between the two types is that the modal schema of the Type 2 individual is the personal interest schema and the modal schema of the Type 3 individual is the

maintaining norms schema. Type 4 represents a consolidated phase at the maintaining norms schema. Types 5 and 6 are considered transitional phases between the maintaining norms and postconventional schema. While the modal schema of the Type 5 individual is the maintaining norms schema, the postconventional schema is the modal schema of the Type 6 individual. Type 7 refers to optimal moral judgment growth and describes an individual who is consolidated at the postconventional schema.

As supported by various studies of reliability and validity reported in Rest's introduction of the DIT (Rest, 1979), it appears that his creation of the DIT has resulted in an instrument derived from Kohlbergian theory. The measure is a quick, yet reliable means of assessing the moral reasoning an individual employs in making moral judgments. He has created a measure that assesses a participant's thinking with precautions taken to ensure that the participant is not just picking items that appear to be correct. The validation process has been extensive (Rest, 1979), and after 25 years of research involving the DIT, its utility as an important instrument of moral judgment development continues to be acknowledged (Rest et al., 1999; Thoma, 2002; Walker, 2002).

Research has deemed the DIT a good measure of moral judgment because it does not require verbal justification of choice (Thoma, 2002). This suggestion is that an evaluation of moral reasoning can be obtained no matter what base level of verbal ability an individual may have. It has been suggested that the DIT, unlike the MJJ, assesses beginnings of moral understanding that are mostly nonverbal and require intuition to answer (Narvaez & Bock, 2002). This nonverbal aspect would imply that it is not just the product of cognitive-intellectual processes that produces scores on the DIT but also a

combination of life events and linking those experiences with the dilemmas on the DIT. Narvaez and Bock (2002) go on to suggest that unlike the MJT, which assesses the highest level of verbal understanding, the DIT measures tacit knowledge, knowledge that is not easily expressed through verbal means. This knowledge is identified as what has been gleaned from experience and it suggests that the DIT measures this higher level of knowledge without verbal explanation (Narvaez & Bock, 2002). As discussed previously, the DIT has the advantage of being an objective rather than subjective measure.

### *Statement of the Problem*

Although it is extensively used, the DIT is not without criticisms. Upon the introduction of the DIT, Kohlberg suggested that a paper-and-pencil based assessment of moral reasoning was not feasible given the complexity of moral thought (Rest et al., 1999). Rest et al. (1999) have also responded to suggestions that the DIT is actually a measure of Liberalism-Conservatism. The idea that moral judgment is simply a different term for political views can be traced back to questions about Kohlberg's measure which some regarded as an "expression of political bias" (Rest et al., 1999, p. 61). These assumptions and questions have also been carried over to the DIT. Such assumptions have been refuted through several different avenues of research (Barnett, Evens & Rest, 1995; Rest et al., 1999; Thoma, Barnett, Rest & Narvaez, 1998; Thoma, Narvaez, Rest, & Derryberry, 1999). Thoma et al. (1999) indicate that the main link between political attitudes and DIT scores is the shifting from one schema to the next. Rest et al. (1999) paralleled this line of thought with their acknowledgement that individuals in the maintaining norms and postconventional schemas tend to reflect certain political



ideologies. They go on to suggest, however, that “the association between political attitude and moral judgment does not mean they are identical” (1999, p. 62). In a review of literature and previous studies of political attitudes and DIT scores, Thoma et al. (1999) illustrated how unique variance would remain when liberal/conservative scores were controlled. As a result of these works, it has been concluded that DIT scores cannot be accounted for through political attitude alone (Thoma et al., 1999).

Another criticism of the DIT is the central focus of this research study and has to do with whether the test is simply a modified measure of verbal ability. Rest (1979) and Rest et al. (1999) have been stringent in their explanations about how the DIT does not rely on verbal ability. However, Sanders, Lubinski, and Benbow (1995) proposed this latter criticism based on the findings of their research. They were motivated by statements that Lykken (1991) originally made suggesting that verbal intelligence may be the true factor involved in the measurement of most popular psychological constructs. To test this claim, Sanders et al. (1995) considered the relationships among DIT scores and two clusters of variables, which they described as cognitive and non-cognitive variables. Sanders et al. (1995) referenced American College Test (ACT) and Scholastic Aptitude Test (SAT) scores along with scores on the Raven’s Advanced Progressive Matrices (Raven, Court, & Raven, 1977) in defining their cognitive variable. Their non-cognitive variable addressed such issues as leisure activities, personality, values, and background. The measures they used in deriving this variable were the Family Environment Scale (Moos & Moos, 1986), Adjective Checklist (Gough & Heilbrun, 1983), and Study of Values (Allport, Vernan, & Lindzey, 1970) as well as a demographics questionnaire.

Sanders et al. (1995) administered the DIT and their battery of measures to a group of gifted children since an important indicator of giftedness is advanced verbal intellectual ability. Sanders et al. (1995) noted that these individuals did appear to have elevated DIT scores in comparison with the DIT scores of non-gifted peers and college students, though they did not report whether these differences were statistically significant. According to Sanders et al. (1995), this disparity suggests the increased influence of verbal ability where DIT scores are concerned. Next, Sanders et al. (1995) used stepwise hierarchical linear regression modeling to determine how their cognitive and non-cognitive variables scores accounted for the variance of the DIT scores. In the model, their cognitive variable index was entered in the first step followed by the non-cognitive variables in the second step. Results showed that the cognitive variable accounted for a significant portion of the variance of DIT scores, although Sanders et al. (1995) do not report an overall  $R^2$  across the three variables that define their cognitive variable nor do they report whether  $F$  was significant or nonsignificant. In the second step, Sanders et al. (1995) report that the non-cognitive variables failed to account for significant levels of DIT score variance. Thus, after controlling for verbal ability it was found that there were no more significant contributions to the DIT. Their final conclusion was that “the DIT is simply another way of measuring verbal ability” (Sanders et al., 1995, p. 502).

This suggestion that the DIT simply measures verbal ability has raised number of questions. The findings and interpretations of Sanders et al. (1995) were the first in this direction in over 25 years of moral developmental research. More disturbingly, however, if the interpretations of Sanders et al. (1995) are accurate, their findings have the potential

to seriously undermine the field of moral development. If true, these findings suggest that the whole approach that the DIT uses in assessing moral judgment has been inaccurate leaving questions about the interpretation of DIT research and leaving researchers and assessors without a valid tool to assess the development of moral judgment.

It should be noted, however, that there are certain weaknesses in the Sanders et al. (1995) study that have caused researchers to question their findings. First, Sanders et al. (1995) tend to overemphasize the findings concerning their gifted sample's elevated DIT scores. Although the DIT scores of their participants do exceed what is normally seen for students of this age range, such scores at this age are not surprising or uncommon – particularly among gifted students (see Chovan & Freeman, 1994; Howard-Hamilton, 1994; Narvaez, 1993; Norman, 2001; Silverman, 1994). Indeed, Rest (1986) has acknowledged that those who show the most advancement in moral reasoning are those with specific educational and academic orientations. These individuals set high academic goals, and they are motivated to reflect upon and integrate the meaning they have derived in school as a fundamental part of themselves. Rest (1986) also points out that those who advance most in terms of moral judgment are those who have come from environments that support, nurture, and facilitate their academic and educational orientations. Research addressing the gifted (Renzulli & Reis, 1991) describes such situations and conditions in gifted populations so their early advancement in moral judgment should be of little surprise. Additionally, Rest (1986) acknowledges that when such orientations are apparent early in life and when specific environments are afforded individuals, it is not unusual to see more advanced moral judgment development at an earlier point than

would normally be expected. Therefore, Rest (1986) maintains that advancement in moral judgment is not the direct result of specific intellect or knowledge. Instead, it is the product of a personal desire to take advantage of the knowledge that verbal ability helps one acquire along with a supportive environment that facilitates and sustains this desire.

Another observable problem with the Sanders et al. (1995) approach is the non-cognitive variables that they chose to use. They used a variety of measures such as leisure activities, values, and various family and background characteristics that were related to DIT scores. However, they did not include any discussion explaining background research supporting such relationships nor did they address other discussion (e.g., Rest, 1979) that has cited minimal relationships with DIT scores and variables similar to their non-cognitive variables. They suggested that these variables had significant relationships with the DIT. Interestingly, they do not support their claim with any data or the inclusion of a correlation matrix in addressing the significance of these relationships.

Because of questions that Sanders et al. (1995) have asked along with the questions that remain regarding their findings, efforts have been made to further test their claims. Thoma et al. (1999) first approached this issue by conducting an inferential investigation of these claims. In considering the findings of Sanders et al. (1995), Thoma et al. (1999) reviewed the validity data associated with the DIT. They set criteria for validity to be established. They had six core criteria, which were correlation with moral comprehension, differentiating known groups, longitudinal trends, sensitivity to intervention, correlations with political attitudes and choices, and correlations with behavior (p. 329). They then took each of these criteria and applied them to both

political attitudes and verbal ability, as each is associated with the DIT. They detailed how moral judgment development would account for the validity criterion clusters that Rest (1979) referenced in validating the DIT if verbal ability were controlled. In doing so, Thoma et al. (1999) detailed how the relationship between moral judgment and the six criterion variables would remain after controlling for verbal ability. To control for verbal ability they investigated and applied the six criterion variables to over 20 studies. When brought against these variables, the various studies were unable to support the suggestion that the DIT was accounted for simply with verbal ability, or political attitudes for that matter (Thoma et al., 1999).

Thoma, Derryberry, and Narvaez (2003) have recently responded to the Sanders et al. (1995) article in testing some of the suggestions that Thoma et al. (1999) made in considering the connection between verbal ability and DIT scores. Thoma et al. (2003) capitalize on the fact that Sanders et al. (1995) did not use a criterion variable that had been verified to be logically or statistically related to DIT scores. Therefore, in considering the relationships between DIT scores and verbal ability among a sample of 154 college students, Thoma et al. (2003) used a logically related criterion variable in their investigation. Their criterion variable was defined by various indices that had a proven statistical relationship with DIT scores. They described their referenced criterion as measuring social-political ideology. This variable was defined according to scores on the Inventory of Religious Belief (Brown & Lowe, 1951), a self-identification with political conservatism measure (Emler, Renwick, & Malone, 1983), a Humanitarian Liberalism measure (Rest et al., 1999), and the Attitudes Towards Human Rights Inventory (Getz, 1985). In deriving this variable, Thoma et al. (2003) were successful in

creating a variable that had both a theoretical and empirical (see Rest et al., 1999) relationship with DIT scores. In a structural equation model, Thoma et al. (2003) considered how moral judgment development and verbal ability, as defined by ACT scores and Grade Point Average (GPA), impacted their social political ideology criterion.

Thoma et al. (2003) expected two principal findings if the arguments of Sanders et al. (1995) were accurate. First, confirmatory factor analyses should reveal that DIT scores and verbal ability scores define the same variable. Second, the structural model of the relationships among these scores should indicate that DIT scores and verbal ability impact the social-political ideology criterion similarly. These trends were not found, however, and the findings refuted the arguments of Sanders et al. (1995) in several ways. First, unique and independent variables of moral judgment and verbal ability were identified. Second, these two variables loaded differently onto the social political ideology variable. Specifically, there was a significant path from the moral judgment to social political ideology (.44) while the path from verbal ability to social political ideology (.20) was not statistically significant. Finally, modification indices suggested that the model that Thoma et al. (2003) tested was an optimal manipulation of data. Thus, there was no support for amending the model or considering different relationships within it.

Derryberry, Thoma, Narvaez, and Rest (2000) took the research a step farther. Although their previous research suggested that the DIT measured a unique construct, they allowed that verbal ability might play a role in moral judgment scores. They suggested that verbal ability might influence individuals when they are in transition between moral judgment schemas. As noted in research of consolidated and transitional

phases (e.g., Thoma & Rest, 1999), they suggested that those in transitional phases may be more likely to consider other sources of information beyond their modal moral judgment schema when answering items on the DIT than are those in a consolidated phase of moral judgment development. According to Derryberry et al. (2000), an individual may reference verbal ability during transitional phases and focus more on what “sounds right” due to the fact that there is not a predominant moral judgment schema. An individual in a consolidated phase is more likely to understand and comprehend situations that are consistent with the schema and is therefore less likely to be influenced by verbal ability or any other alternative source of information.

To test the influence of verbal ability during transitional phases, Derryberry et al. (2000) administered to college students the DIT and the Attitudes Towards Human Rights Inventory (ATHRI; Getz, 1985), a measure that strongly accounted for the social-political ideology variable that Thoma et al. (2003) defined. They used ACT English and Social Science scores along with GPA in defining verbal ability. Using structural equation modeling, they first tested the Thoma et al. (2003) model using data from all participants. In this analysis, the findings of Thoma et al. (2003) were replicated. Derryberry et al. (2000) then distinguished participants in a transitional phase from those in a consolidated phase and ran separate analyses for those in these phases. While no changes were expected in the analyses of consolidated individuals, Derryberry et al. (2000) allowed that verbal ability might account for moral judgment during transitional phases. This was not the case. In both analyses, three factors were clearly defined by confirmatory factor analyses, DIT scores significantly loaded upon ATHRI scores, and minimal contributions were seen from verbal ability in the structural models. Once again

the Sanders et al. (1995) findings were refuted, and it was suggested that the DIT measures a unique variable, independent of verbal ability.

Thus, the best that can be said is that a small to moderate relationship exists between DIT scores and verbal ability, which Rest initially noted in 1979. Rest himself acknowledged that a certain amount of verbal ability must be present in order to take the DIT. In his 1979 book, he cited 52 studies that looked at cognitive-intellectual capabilities and the DIT where correlations between the DIT and measurements of verbal ability consistently ranged from the  $r = .20$ s to the  $r = .50$ s. Rest (1979) maintained that such small to moderate correlations between DIT scores and assessments of verbal ability are expected and important. Such a relationship is expected because it would be impossible to take the DIT without a certain amount of verbal ability. Such a relationship is also important, though, because it verified that there was much variance that was unshared between the two constructs. He went on to surmise that it is not a link to verbal ability that results in moral judgment development, but rather a link with general intelligence (Rest, 1979).

The relationship between DIT scores and verbal ability warrants further consideration. There are several reasons why these considerations need to be made. The first reason is that recent research on the relationship between DIT scores and verbal ability has only used inferred assessments of verbal ability (i.e., ACT/SAT scores and GPA). There is very little information about how moral judgment, as defined by the DIT, relates to measurements that are designed to specifically assess verbal ability. The second reason for further consideration is the fact that assessments of verbal ability have been revised and updated since Rest (1979) reviewed how DIT scores relate to actual



assessments of verbal and other intellectual abilities. Newer tests have been developed that more precisely define verbal ability and have better reliability and validity. Another reason to look at the Sanders et al. (1995) claim is the fact that evidence remains that those presumed to be advanced in verbal ability regularly show advances in moral judgment ability or other areas of moral functioning (Chovan & Freeman, 1994; Howard-Hamilton, 1994; Narvaez, 1993; Norman, 2001; Silverman, 1994).

Though the DIT may not simply be a measure of verbal ability, the relationship between verbal ability and moral judgment is an important one. Further consideration of this relationship may provide important insights for those responsible for the study of moral judgment. If we can understand those aspects of verbal ability that are most involved in moral judgment development, we may be more effectively prepared to facilitate its advancement.

#### *Purpose of the Study*

The purpose of this study is to further test the claims of Sanders et al. (1995) that the DIT is reducible to verbal ability using a direct assessment of verbal ability rather than an inferred one. As previously discussed, Sanders et al. (1995) have suggested that moral judgment as defined by the DIT is reducible to verbal ability. Though studies have been conducted to further examine the suggestion of Sanders et al. (1995), such considerations have not used an actual measurement of verbal ability. Instead, research has been conducted on convenience samples using inferred measures of verbal ability such as the ACT or SAT. Thus, it would be of benefit to use an actual measure of verbal ability to lay claim to or dispute that the DIT is a measure of verbal ability.

Whether or not the DIT is reducible to verbal ability, the inclusion of an actual measure of verbal intellectual abilities would facilitate a more precise determination of those intellectual processes that may be linked to DIT scores. Those who have addressed the DIT-verbal ability relationship – including both Sanders et al. (1995) and Thoma (Derryberry et al., 2000; Thoma et al., 1999; Thoma et al., 2000) – have been vague about what they mean by the term “verbal ability” and never provide a specific definition of this term though they do refer to “markers of general intelligence...[such as] language, vocabulary, and social science test scores” (Sanders et al., p. 500) in describing verbal ability. Thus, it seems that the factor analytic theory of Cattell and Horn’s (1978) conception of crystallized and fluid intelligences may be of utility in directly examining the relationship between DIT scores and verbal ability.

According to Cattell and Horn (1978), crystallized (Gc) intellectual abilities suggest that an individual is capable of drawing from a store of information that is banked away in the brain. Kalant (1999) describes crystallized intelligence as “acquired skills and knowledge, and the application of that knowledge to specific content in a person’s experience” (p. 317). This type of intellectual capacity relies on information that has been acquired through the years. It is suggested that this form of intelligence remains relatively stable over the years, as long as there are no health related issues that could impact an individual’s ability to retrieve this information (Kalant, 1999). Fluid (Gf) intellectual abilities, on the other hand, suggest that an individual is capable of using knowledge in a more flexible, spur-of-the moment manner. Kalant describes fluid intelligence as the “basic power of reasoning and using information, including the ability to perceive relationships, deal with unfamiliar problems, and gain new types of

knowledge” (1999, p. 317). This type of intellectual capacity relies more on short-term and working memory where a lot of information is stored then processed in a rapid manner. It is suggested that this form of intellectual functioning peaks around the age of 20, and then begins to decline (Kalant, 1999). Although fluid intellectual abilities could reasonably play a role in the formation of moral judgments, Cattell and Horn’s (1978) conception of crystallized intellectual ability seems to be very similar to the construct that Sanders et al. (1995) and Thoma (Derryberry et al., 2000; Thoma et al., 1999; Thoma et al., 2000) have debated. It should therefore be noted that this study will only consider crystallized abilities, even though intellectual ability also requires fluid abilities.

Findings of this study can be beneficial to moral developmental research for several reasons. First and foremost, this study can provide further evidence concerning the true nature of the construct that the DIT measures. The Sanders et al. (1995) claim created a number of unanswered questions in the field of moral judgment research. Because their research raised doubt about what the DIT measures, validation of their study would provide serious questions about past, present, and future research involving the DIT. If the Sanders et al. (1995) argument is valid then it may apply to other tests that have not been solely created to assess verbal ability. As Lykken (1991) has noted, it may be possible that many popular tests and assessments of psychological constructs are simply measures of verbal ability. Personality tests, inventory assessments, intellectual assessments, and screeners could all simply be forms of verbal ability. Verification that the DIT is reducible to crystallized intelligence could affect the world of psychological measurements as a whole. If the arguments of Sanders et al. (1995) are refuted, knowledge from this research will not only help clarify that which the DIT measures but

can also supply researcher with a better understanding of how verbal ability influences moral development as measured by the DIT.

### *Research Question*

Based on the questions that have been raised about the DIT regarding the role of verbal ability, the research question that has been proposed in this study is as follows: *Is there evidence that the DIT is reducible to verbal ability as assessed by an actual assessment of verbal ability?* Because of the recent challenge to the construct validity of the DIT, this question is important to address. In addressing this question, it is hoped that the suggestion regarding impact of verbal ability on the DIT will be resolved. As mentioned, crystallized intellectual abilities seem to be similar to what Sanders et al. (1995) and Thoma (Derryberry et al., 2000; Thoma et al., 2003; Thoma et al., 1999) have referenced in describing verbal ability. Thus, the measure that will be used in noting verbal ability is the Kaufman Adolescent and Adult Intelligence Test (KAIT; Kaufman & Kaufman, 1993), which addresses Cattell and Horn's (1978) conception of both crystallized and fluid intellectual abilities.

An important advantage of using the KAIT is that it is a newer assessment tool and reflects a more up-to-date consideration of intellectual abilities. At the time when Rest (1979) was looking at intellectual measures associated with the DIT, there were a limited number of options for assessing intellectual ability. Furthermore, intellectual assessments have been refined and improved since then. Newer measures, such as the KAIT, may lead to a more precise understanding about how moral judgment development and verbal intellectual ability relate.

In considering the research question of this study, the sample as a whole will be addressed. Analyses will be conducted using Structural Equation Modeling and Hierarchical Linear Regression. Structural Equation Modeling will allow an initial understanding about how verbal ability relates to DIT scores across the sample. A model similar to those that Thoma et al. (2003) and Derryberry et al. (2000) have specified will be assessed. Addressed will be how variables of moral judgment and verbal ability impact attitudes regarding human rights, which Thoma et al. (2003) and Derryberry et al. (2000) have acknowledged as an important aspect of their criterion of social political ideology. In testing the claims of Sanders et al. (1995), it is expected that such a model will reveal whether or not there is evidence for unique variables of moral judgment, verbal ability, and attitudes about human rights. Furthermore, the model will be able to note the independent contributions of each variable by revealing whether or not the paths from the moral judgment and verbal ability variables to the criterion variable are similar or different. Finally, the model will also be able to denote whether or not verbal aspects of intelligence influence or predict moral judgment. If the model acknowledges that verbal aspects of intelligence are predictive of moral judgment, Hierarchical Linear Regression will be completed in order to determine if there are any specific verbal aspects of intelligence that are most influential to moral judgment.

## Method

### *Participants*

Participants in the study were 119 individuals from a public university. Students taking various classes, undergraduate and graduate, during the spring and summer of 2004 were asked to participate and were provided extra credit and the opportunity to win \$25 gift cards following the completion of the study. A demographics survey (Appendix A) was used to obtain background information of the participants. Of those who identified their gender, 84 were female, and 33 were male. Of those who reported class year, 7 were freshmen, 21 were sophomores, 37 were juniors, 48 were seniors, and 4 reported other. Of those who reported information about ethnicity, 98 were Caucasian, 12 were African American, and 3 reported other. Average age of the sample was 23.12 ( $SD = 5.95$ )

### *Measures*

*Moral judgment.* The Defining Issues Test (DIT; Rest, 1979; Rest et al., 1999) (Appendix B), a multiple-choice objective measure, was used to assess moral judgment. In the DIT, the participant receives a series of six moral dilemmas and is asked to make an action choice (moral judgment) about what the main character of the dilemma should do. This decision is made in terms of whether the character in the story should act on the situation, not act on the situation, or the participant indicates that he/she cannot decide one way or the other. Following this decision, the participant is presented with 12 issues or statements that pertain to the dilemma and is asked to rate each statement on a scale of 1 to 5 in terms of its overall importance (e.g., 1 = great importance; 5 = no importance) in helping the participant to make his or her action choice about what the character should

do. Lastly, the participant is asked to rank the four items for each dilemma that were the most important in helping the participant to make his or her action choice about what the character should do. A participant's noted importance of the rated and ranked issue statements provides information about his or her reference to and the relative importance of the Personal Interest (i.e., similar to Kohlberg's stages 2 and 3), Maintaining Norms (i.e., similar to Kohlberg's stage 4), and Postconventional (i.e., similar to Kohlberg's stages 5 and 6) moral judgment schemas.

From the aforementioned information, a variety of developmental indices can be generated. The particular indices used in this study were the N2 score and the Type score. The N2 score takes into account an individual's rating and ranking of items and provides an indicator of the degree to which the postconventional schema influences a participant's moral judgments. The N2 score ranges from 0 – 95. Higher scores reflect a greater preference for the postconventional schema. Those with high N2 scores are those who have rated and ranked postconventional items highly and have rated personal interest and maintaining norms items as not important. The Type score provides a measure of both a participant's modal schema of moral judgment and whether or not that person is in a transitional or consolidated phase at the schema. As such, the Type score provides a more precise picture of an individual's moral judgment development than does the N2 score. Type scores range from 1 to 7. Types 1 and 2 reflect the personal interest schema. Types 3, 4, and 5 reflect the maintaining norms schema. Types 6 and 7 reflect the postconventional schema. Transitional phases of moral judgment are emphasized in Types 2, 3, and 5. Consolidated phases are emphasized in Types 1, 4, and 7. As noted in Rest et al. (1999), the test-retest reliability for the measure has been reported to range

from  $r = .70$  to  $r = .80$  and Chronbach's alpha measure of internal consistency has been reported as ranging from  $\alpha = .76$  to  $\alpha = .83$ .

*Verbal ability/Crystallized intelligence.* The Kaufman Adolescent and Adult Intelligence Test (KAIT; Kaufman & Kaufman, 1993) was used to assess verbal ability. The full-scale assessment produces a crystallized IQ, a fluid IQ, and a composite IQ score. The test can produce accurate measures of intelligence for individuals between the ages of 11 and 85. The test has six subtests that comprise the core battery. Three of the subtests were used for this study (Definitions, Auditory Comprehension, and Double Meanings). The assessment is administered under standardized conditions with each participant receiving the set of subtests in the same order and receiving the same instructions.

The Definitions subtest requires the individual to use word knowledge and ability. The participant is presented with a simple clue and part of the word he/she is looking for (e.g., an animal with four legs; H\_ R\_ E). If an individual is unable to answer an item within 30 seconds, the next item is presented. This subtest is identified as assessing such things as verbal comprehension, verbal expression, and word knowledge (Kaufman & Kaufman, 1993).

The Auditory Comprehension subtest exposes the participant to a series of orally presented stories. The participant is asked questions after being read each story. Abilities that are assessed through this subtest include: abstract reasoning, verbal comprehension, and verbal concept formation (Kaufman & Kaufman, 1993).

The Double meanings subtest presents the participant with a series of words that all have a similar meaning but are two distinct areas (e.g., write and ink & fence and



animals). The answer would be PEN. If the answer is not given within 30 seconds, the next item is presented. Some abilities that are assessed through this subtest include: fund of information, word knowledge, and acquired knowledge (Kaufman & Kaufman, 1993)

The KAIT produces Crystallized, Fluid, and Composite IQ scores with a mean of 100 and a standard deviation of 15. Subtest scores produce a mean of 10 with a standard deviation of 3. The internal consistency of the six core tests, for all three scales, ranges from  $r = .95$  to  $r = .97$  (Sattler, 2001). The correlations with other tests of intelligence range from  $r = .55$  to  $r = .85$  (Sattler, 2001). Kaufman and Kaufman (1993) suggest that the Fluid Scale closely resembles the *Gf* scale of the Horn and Cattell theory and that the Crystallized Scale strongly resembles the *Gc* scale of the Horn-Cattell theory. They suggest that the Crystallized Scale measures “acquisition of facts and problem solving ability using stimuli that are dependent on formal schooling, cultural experiences, and verbal conceptual development” (Kaufman & Kaufman, 1993, p. 7). They also suggest that the Fluid Scale measures “a person’s adaptability and flexibility when faced with new problems, using both verbal and nonverbal stimuli” (Kaufman & Kaufman, 1993, p. 7). In addition, they suggest that the Composite IQ score provides a comparable summary of the Fluid and Crystallized scores, but that is not as strong as the Fluid and Crystallized scales are when they stand alone because of the possible variance between an individual’s fluid and crystallized abilities.

*Human rights attitudes.* The Attitude Towards Human Rights Inventory (ATHRI; Getz, 1985) (Appendix C) will be used as the criterion for moral judgment and verbal ability. A strong relationship has regularly been seen between DIT and ATHRI scores (Rest et al., 1999), and recent studies that have examined the claims of Sanders et al.

(1995) have used this instrument as an outcome measure of moral judgment.

Specifically, Thoma et al. (2003) and Derryberry et al. (2000) have found through their research that DIT scores significantly predict ATHRI scores, whereas verbal ability scores do not.

The ATHRI assesses how individuals view various human rights and civil libertarian issues. The 48-item Likert scale has 8 non-controversial statements, statements that do not sway an individual to be more opinionated in one direction or the other, where little variance is seen among participants such as “Freedom of speech should be a basic human right.” The other 40 statements pertain to more controversial ideas regarding human rights such as “Books should be banned if they are written by people who have been involved in un-American activities” and “Laws should be passed to regulate the activities of religious cults that have come here from Asia.” The participant is presented with each item and then asked to rate the item on a scale of 1 (Strongly Agree) to 5 (Strongly Disagree). Items are summed to create a total score, which ranges from 40 to 200. Those with low scores are assumed to be uninterested in granting civil liberties while those with high scores are assumed to be interested in granting civil liberties. Chronbach’s alpha measure of internal consistency has been reported to range from  $\alpha = .85$  to  $\alpha = .93$  (Narvaez, Rest, & Getz, 1999).

### *Procedure*

Data collection required two separate sessions. In the first session, individuals provided informed consent (see Appendix D) and then completed a demographics questionnaire (see Appendix A), the DIT, and the ATHRI. Previous research has shown that the order in which these two measurements are administered does not make a

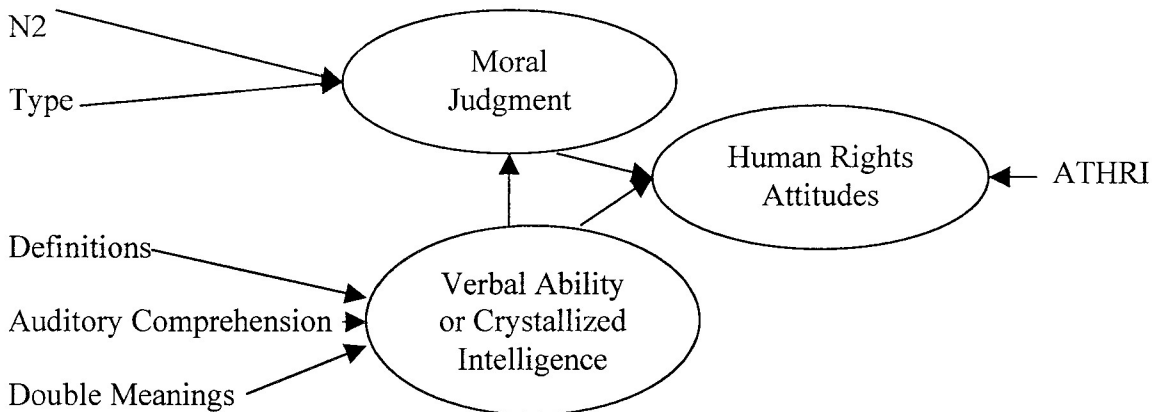
difference in scores (Derryberry, 2001). At the completion of the first session, participants scheduled their second session. In the second session, participants completed the KAIT. The names of all participants were put into a raffle and awards of gift cards were given once data collection was completed.

### *Design*

The design of this study is correlational in nature. Figure 1 denotes the overall approach. As shown in Figure 1, this study is designed to enable verification of whether moral judgment, verbal ability, and attitudes about human rights are unique and independent constructs. Additionally, specific paths among these constructs are considered. As noted earlier, Structural Equation Modeling and Hierarchical Linear Regression will be used in examining the data.

Figure 1

*Anticipated Design Approach for Structural Equation Modeling.*



## Results

Two of the initial 119 participants were dropped from the study due to incomplete data or failure to pass reliability checks. Participant characteristics are shown in Table 1. As a whole, the sample is in the average range in terms of crystallized intelligence (Kaufman & Kaufman, 1993), is functioning mainly at the Maintaining Norms Schema where moral judgment development is concerned (Rest et al., 1999), and is mildly supportive of civil libertarian issues (Getz, 1985).

Table 1

### *Descriptive Statistics of the Participants*

Index	Mean	Std. Deviation	N
N2	34.01	11.92	117
Type	4.17	1.67	117
CrysDef	9.68	2.216	117
CrysAud	9.41	2.005	117
CrysDbI	9.80	2.416	117
CrysComp	97.21	9.176	117
ATHRI	131.97	17.39	117

Note: N2 = Defining Issues Test (DIT) index of postconventional reasoning, Type = DIT index of schema and developmental phase, CrysDef = Kaufman Adolescent and Adult Intelligence Test (KAIT) Definitions Subtest, CrysAud = KAIT Auditory Comprehension Subtest, CrysDbI = KAIT Double Meanings Subtest, CrysComp = KAIT Crystallized Composite Score, ATHRI = Attitudes Toward Human Rights Inventory score.

As noted in Table 2, significant correlations exist among the various indices. As should be expected, the strongest relationships are seen among those indices that are intended to define the same variable (e.g., among those indices that represent aspects of moral judgment and among those variables that represent aspects of crystallized

intelligence). Though not as strong, statistically significant correlations are seen among indices that are intended to define different variables, suggesting that shared variance exists among the various constructs that are considered in this study. It should be noted that the magnitude of these correlations is similar to that seen in previous study (Derryberry et al., 2000; Thoma, et al., 2003).

Table 2

*Correlation Matrix of DIT, KAIT, and ATHRI Scores.*

	N2	Type	CrysDef	CrysAud	CrysDbl	CrysComp	ATHRI
N2	1.00						
Type	.730**	1.00					
CrysDef	.367**	.311**	1.00				
CrysAud	.225*	.177	.469**	1.00			
CrysDbl	.253**	.206*	.600**	.467**	1.00		
CrysComp	.333**	.283**	.834**	.760**	.860**	1.00	
ATHRI	.290**	.239**	.199*	.353**	.158	.276**	1.00

Note: \*\* p<.01, \* p<.05; N2 = Defining Issues Test (DIT) index of postconventional reasoning, Type = DIT index of schema and developmental phase, CrysDef = Kaufman Adolescent and Adult Intelligence Test (KAIT) Definitions Subtest, CrysAud = KAIT Auditory Comprehension Subtest, CrysDbl = KAIT Double Meanings Subtest, CrysComp = KAIT Crystallized Composite Score, ATHRI = Attitudes Toward Human Rights Inventory score

Structural Equation Modeling (SEM) using LISREL 8.30 (Joreskog & Sorebom, 1993) statistical software was used in addressing the research question of this study. SEM is especially relevant where this study is concerned because it allows the investigator to ascertain the uniqueness of the latent constructs under investigation. If the

uniqueness of latent constructs is verified, the researcher can then examine any suggested paths among the constructs.

SEM typically involves two steps or phases. The first step is known as the measurement phase. In this phase, a correlation or covariance matrix is interpreted through confirmatory factor analysis to determine whether unique latent constructs or variables exist as defined by the considered measurements or observed variables of study. Thus, this step produces a model that illustrates the number of latent variables that exist. LISREL 8.30 (Joreskog & Sorebom, 1993) generates a variety of statistics that are used in interpreting the overall soundness or fit of the measurement phase model. The initial source of information is the observance of the t-scores of each factor loading. T-scores of 1.96 or greater provide evidence that an observed variable significantly loads upon the latent variable ( $p < .05$ ) (Table 3). Once it has been verified that all of the observed variables significantly load upon latent variables, goodness of fit statistics are considered.

In order to obtain a more accurate interpretation of the fit of the measurement model, a variety of goodness of fit statistics should be considered and the overall fit of the measurement model should be evaluated across multiple fit statistics (Schumacker & Lomax, 1996). The chi-square is one of the oldest fit statistics and continues to play a major role in structural equation modeling. Nonsignificant chi square values suggest good fit. Also considered is the Goodness of Fit Index (GFI). Typically, values greater than .90 are indicative of good fit. To accommodate degrees of freedom, the Adjusted Goodness of Fit Index (AGFI) is considered. A score greater than .90 is considered to be good fit. Another goodness of fit statistic is the Normed Fit Index (NFI), which re-scales chi-square values onto a scale from 0 (no fit) to 1 (perfect fit). The chi-square ratio

Table 3

*Magnitude and T-Scores of Factor Loadings/Path Coefficients*

Model	Factor Loading/ Path Coefficient	Magnitude	T-Score
Measurement	N2 to Morjud	.94	8.85
	Type to Morjud	.78	7.61
	Crysdef to Crystal	.80	8.65
	Crysaud to Crystal	.61	6.47
	Crysdbl to Crystal	.74	7.88
	ATHRI to Humrts	1.00	15.23
Structural	Morjud to Humrts	.22	2.04
	Crystal to Humrts	.19	1.68
	Crystal to Morjud	.43	3.61

Note: N2 = Defining Issues Test (DIT) index of postconventional reasoning, Type = DIT index of schema and developmental phase, Crysdef = Kaufman Adolescent and Adult Intelligence Test (KAIT) Definitions Subtest, Crysaud = KAIT Auditory Comprehension Subtest, Crysdbl = KAIT Double Meanings Subtest, ATHRI = Attitudes Toward Human Rights Inventory (ATHRI) scores, Morjud = latent construct of moral judgment, Crystal = latent construct of crystallized intelligence, Humrts = latent construct of human rights attitudes.

( $\chi^2/df$ ) is another index that provides information about model fit. For good fit, this ratio needs to be below 2.5. Lastly, the Standardized Root Mean Squared Residual (SRMR) is considered which accounts for sample and model covariance. This measure indicates whether there is a small enough covariance between the sample and model. A value of .10 or less is considered to be suggestive of good fit. Structural equation modeling also offers suggestions or modification indices for optimizing the fitness of a model. If the model is not a good fitting model or if the fit of the model can be improved, LISREL will suggest modifications at the end of the report.

As illustrated in Figure 2, the measurement phase suggested that the best fitting model was one in which three latent constructs are specified. Specifically, confirmatory factor analysis revealed that all of the observed variables significantly load upon or predict their intended latent variable; that is, N2 and Type significantly load upon what is interpreted as the “Moral Judgment” latent variable; Definitions, Auditory Comprehension, and Double Meanings significantly load upon what is interpreted as the “Crystallized Intelligence” latent variable; and ATHRI loads upon what is interpreted as the “Human Rights Attitudes” latent variable. As seen in Table 4, fit statistics consistently show that the model is an optimal fit to the data. The fit of the measurement model is further supported by a lack of theoretically relevant modification indices. Taken together, these statistics from the measurement phase suggest that, overall, three latent constructs represents an accurate and optimal depicter of the data.

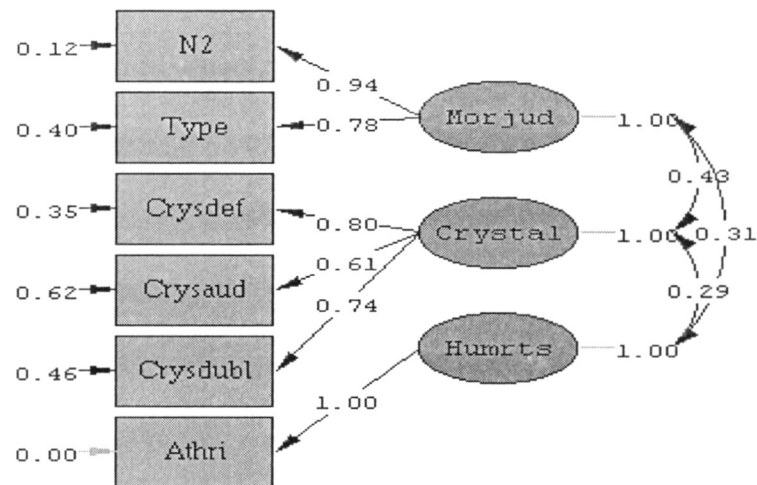
The second step in SEM is the structural phase. Because the measurement phase has shown that three latent variables is an accurate depicter of data, the structural phase enables the specification and testing of specific paths among the latent variables in what is described as the structural model. In evaluating the accuracy of the suggested paths of the structural model, similar statistical information is considered that is generated through LISREL 8.30 (Joreskog & Sorbom, 1993). As is the case with the measurement model, goodness of fit statistics and modification indices are considered. Also, considered are the t-scores of the path coefficients within the structural model, which indicate whether or not the specified paths are significant (Table 3). Thus, this phase not only enables the determination of whether significant paths exist among latent constructs but it also



provides data about whether such paths are warranted and whether other paths should be considered.

Figure 2

*Measurement Model: Identification of Latent Constructs*



Note: N2 = Defining Issues Test (DIT) index of postconventional reasoning, Type = DIT index of schema and developmental phase, Crysdef = Kaufman Adolescent and Adult Intelligence Test (KAIT) Definitions Subtest, Crysaud = KAIT Auditory Comprehension Subtest, Crysdbl = KAIT Double Meanings Subtest, ATHRI = Attitudes Toward Human Rights Inventory (ATHRI) scores, Morjud = latent construct of moral judgment, Crystal = latent construct of crystallized intelligence, Humrts = latent construct of human rights attitudes.

In the current study three paths were specified in the original structural model (see Figure 3): 1) from Moral Judgment to Human Rights Attitudes, 2) from Crystallized Intelligence to Human Rights Attitudes, and 3) from Crystallized Intelligence to Moral Judgment. T-scores of the path coefficients report that significant paths exist from Moral Judgment to Human Rights Attitudes and from Crystallized Intelligence to Moral Judgment ( $p < .05$ ) (Table 3). As reported in Table 4, the structural model has good fit and is identical to the fit statistics seen in the measurement model. This lack of change in fit statistics is not surprising due to the small number of latent constructs in conjunction with the fact that only three paths are specified in the structural model. No theoretically

Table 4

*Goodness of Fit Statistics for both Measurement and Structural Models of Structural Equation Modeling*

Fit Statistics:	Measurement Model	Structural Model
Degrees of Freedom	7	7
Chi-Square	10.25 (p = .17)	10.25 (p = .17)
Chi-Square ratio	1.46	1.46
GFI	.97	.97
NFI	.95	.95
AGFI	.91	.91
SRMR	.046	.046

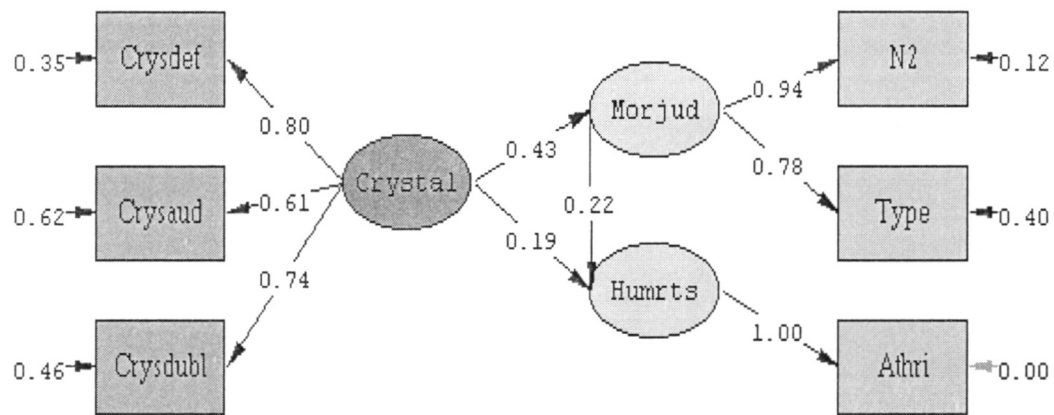
Note. GFI = Goodness of Fit Index, NFI = Normed Fit Index, AGFI = Adjusted Goodness of Fit Index, SRMR = Standardized Root Mean Squared Residual.

relevant modification indices were suggested. Taken together, the model specified in the structural phase is an accurate estimation of the latent constructs.

Because the structural model showed that crystallized intelligence predicted moral judgment, Hierarchical Linear Regression was conducted in order to determine if there are any specific aspects of crystallized intelligence that predict DIT scores. The regression analyses showed that crystallized intelligence as a whole does significantly account for N2 score variance as noted by a significant F (see Table 5). Additionally, Table 5 supports that this influence is most directly attributable to the Definitions subtest ( $p < .006$ ).

Figure 3

*Structural Model: Specification of Paths among Latent Constructs.*



Note: N2 = Defining Issues Test (DIT) index of postconventional reasoning, Type = DIT index of schema and developmental phase, Crysdef = Kaufman Adolescent and Adult Intelligence Test (KAIT) Definitions Subtest, Crysaud = KAIT Auditory Comprehension Subtest, Crysdbl = KAIT Double Meanings Subtest, ATHRI = Attitudes Toward Human Rights Inventory (ATHRI) scores, Morjud = latent construct of moral judgment, Crystal = latent construct of crystallized intelligence, Humrts = latent construct of human rights attitudes.

Table 5

*Summary of Hierarchical Regression Analysis for Variables Predicting Verbal Ability*

Variable	<i>B</i>	SE <i>B</i>	$\beta$
CrysDef	1.712	.609	.318
CrysAud	.361	.609	.061
CrysDbl	.161	.548	.033

Note:  $R^2 = .139$ , ( $F = 6.066$ ,  $p < .001$ ); Crystallized Subtests from the Kaufman Adolescent and Adult Intelligence Test (Kaufman & Kaufman, 1993). CrysDef = Definitions Subtest, CrysAud = Auditory Comprehension Subtest, and CrysDbl = Double Meanings Subtest.

## Discussion

Because of previous and differing considerations (e.g., Derryberry et al., 2000, Sanders et al., 1995; Thoma et al., 1999, Thoma et al., 2003) of the relationship between verbal aspects of intellectual ability and moral judgment as defined by the DIT, the purpose of the current study was to determine how crystallized intelligence scores on the KAIT relate to DIT scores. Thus, the research question of this study examined the claims of Sanders et al. (1995) who suggested that DIT scores are reducible to aspects of intellect. In order to more precisely answer this question, Structural Equation Modeling (SEM) and Hierarchical Linear Regression were employed.

The current study showed that moral judgment as defined by the DIT and crystallized intelligence as defined by the KAIT are unique and independent sources of information. The identification of this as an independent source is first apparent in the measurement phase of SEM. If the contentions of Sanders et al. (1995) were accurate, one would expect the measurement phase to show that at least some of the observed variables of moral judgment (e.g., N2 or Type) and the observed variables for crystallized intelligence (Definitions, Auditory Comprehension, or Double Meanings) to load upon the same latent construct. On the other hand, if the arguments of Thoma et al. (1999) were correct, then the measurement phase would suggest separate latent constructs. As seen in this phase, the current study shows that best fitting model one in which DIT scores and KAIT scores define separate variables as significant factor loadings, optimal goodness of fit statistics, and a lack of modification indices verify. Therefore, the measurement phase is not supportive of the claims of Sanders et al. (1995) that moral judgment and aspects of verbal intellectual ability are reducible to each other.

There is further support for the contentions of Thoma and his colleagues (Derryberry et al., 2000, Thoma et al., 2003, Thoma et al., 1999) in the structural phase of SEM. Specifically, the Moral Judgment and Crystallized Intelligence latent variables were shown to account for the Human Rights Attitudes latent variable in different ways. As seen in Figure 3, most notable is a significant path from the Moral Judgment latent variable to the Human Rights Attitudes latent variable while a nonsignificant path exists from the Crystallized Intelligence latent variable to the Human Rights latent variable. To be sure, if these two independent latent variables were synonymous and moral judgment were reducible to crystallized intelligence, a significant path from the Moral Judgment latent variable would not be expected. Instead, other trends would be expected. For example, paths of identical magnitude might be seen. Or, if the arguments of Sanders et al. (1995) were accurate, it is possible that a significant path from the Crystallized Intelligence latent variable to the Human Rights Attitudes latent variable could be seen in conjunction with a negligible path from the Moral Judgment latent variable to the Human Rights Attitudes latent variable.

Although the path from the Moral Judgment latent variable to the Human Rights Attitudes latent variable is significant and the path from the Crystallized Intelligence latent variable is not, Table 3 denotes that the difference in magnitude between these paths is small to moderate. As such, it is conceivable sample size in conjunction with more range among each construct could impact these paths. Based on previous research involving the ATHRI (Getz, 1985; Narvaez, Rest, & Getz, 1999; Rest et al., 1999; Thoma et al., 2003), one would expect these paths to become even more differentiated with the path from the Moral Judgment latent variable becoming stronger and the path from the

Crystallized Intelligence remaining relatively stable. A variety of reasons are supportive of this stability in Crystallized Intelligence. First, the ATHRI has been shown to have the strongest relationships with DIT scores when the postconventional schema is more prevalent in samples (Thoma et al., 2003). Thus, greater DIT score variance would be expected to improve the path from Moral Judgment latent variable, not lessen it.

It is doubtful that the path from the Crystallized Intelligence latent variable would change significantly due to the nature of the ATHRI itself. Specifically, the ATHRI is a relatively easy instrument to complete in that it only requires the participant to respond to and offer opinions about brief statements. Thus, it relies more on opinion and attitude than it does on verbal and intellectual factors such as memory, comprehension, and meaning. Including this study, this possibility has continually been confirmed as paths from latent constructs of verbal ability have consistently ranged from .08 to .19 (Derryberry et al., 2000; Thoma et al., 2003). Therefore, there does not appear to be any support that increased variance in KAIT scores would increase the magnitude of the path from the Crystallized Intelligence latent variable.

It is important to note in the structural phase that a significant path exists from the Crystallized Intelligence latent variable to the Moral Judgment latent variable. Although this path is the strongest path of the three specified in the model, it should not be interpreted as supporting the contentions of Sanders et al. (1995). An important indication of lack of support is the fact that the error variance (.87) of this path is high. Thus the suggestion is that though crystallized intelligence is readily involved in and a part of DIT scores, it is still one of presumably many things that impacts the making of a moral judgment. Ironically, such a premise has been suggested for some time (Rest,

1979) and continues to be supported (Narvaez & Bock, 2002). To be sure, it is a natural assumption that one has to have basic verbal skills in order to read, consider verbal terms and knowledge, and therefore respond to the DIT and any other assessment. As such, this path is sensible and not surprising. In fact, it would be more surprising if KAIT scores were not an important aspect of DIT scores. Furthermore, this finding may suggest that, from the neo-Kohlbergian view, a moral judgment schema is actually akin to crystallized intelligence. Indeed, the moral knowledge that comprises a moral judgment schema may follow similar paths that any form of knowledge that crystallized intelligence generates must also follow. Therefore, operating from a particular moral judgment schema may actually be the manifestation of a moral form of crystallized intelligence, in no way suggesting that moral judgment development and crystallized intelligence are synonymous, however. For example, as is noted below, it would be farfetched to assume that crystallized abilities guarantee specific knowledge structures – moral or otherwise.

Hierarchical Linear Regression was conducted in order to better make sense of the path from the Crystallized Intelligence latent variable to the Moral Judgment latent variable and also to determine if there were any specific facets of crystallized intelligence that are most strongly associated with DIT scores. As seen in Table 4, it is apparent that it was crystallized intelligence as a whole that predicted moral judgment, and most responsible for this prediction is the Definitions subtest. As a low amount of shared variance ( $R^2 = .14$ ) across the three subtests suggests, it is difficult to say that DIT scores are reducible to any KAIT scores, however. At the same time, though, it makes sense that one with good knowledge of definitions might perform more effectively on any test such as the DIT, which requires the comprehension of various terms and concepts.

Though this study does not support the arguments of Sanders et al. (1995) and is more supportive of Thoma and his colleagues (Derryberry et al., 2000; Thoma et al., 2003; Thoma et al., 1999), there are some interesting characteristics in the sample that should be addressed. As noted earlier, the majority of the sample is functioning at a Maintaining Norms level of moral judgment (56%) and a large majority of the sample (66%) is average in terms of crystallized intellectual ability. As such, it is difficult to do comparisons among below, average, and above average groups given this disparity. Indeed, it would be interesting to ascertain whether or not there are differences in moral judgment scores for those who are above average in terms of crystallized intelligence. Several aspects of the regression analysis provide support that differences would not be seen, however. As noted, there is low shared variance ( $R^2 = .14$ ) between KAIT and DIT scores. Furthermore, though the KAIT Definitions subtests is a significant predictor of DIT scores, it is difficult to say that higher scores on this subtest would yield higher DIT scores since the range is limited on both of these tests. Thus, there is reason to believe that though KAIT scores as a whole are important contributors to DIT scores, advances in crystallized intellectual ability will not necessarily translate to advances in moral judgment. It does seem apparent from this analysis, however, that taking the DIT naturally requires a certain amount of crystallized intellectual ability and that a certain level of vocabulary ability is needed in order to take the DIT. It should be noted, though, that Rest seems to have been aware of this in documenting that the DIT is intended for only those of at least a junior high reading level (Rest, 1979).

The current study has several limitations. The sample used was comprised completely of college students. Future studies should incorporate a variety of different



age groups. It is conceivable that the inclusion of different age groups might also help to improve the variance among the moral judgment and crystallized intelligence indices, another limitation of the study. Future study should therefore aspire to specifically examine how crystallized intelligence relates to higher levels of moral judgment.

Another limitation of the study is the fact that the criterion latent structure is only defined by one observed variable. Although ATHRI has been noted as an important criterion of moral judgment (Rest et al., 1999), future study involving SEM should include other relevant indices in defining the criterion latent structure so that error variance of each observed variable that defines the latent criterion is known. Additionally, future study might seek to include relevant latent criteria that are actual behaviors rather than inferred ones. For example, there are a variety of means for assessing actual instances of honesty and altruism (see Derryberry, 2001). Accounting for a criterion that requires little verbal production might go a long way in helping to further recognize the independence of DIT and KAIT scores. Lastly, the sample size is a limitation of the study. Though the size is adequate for Structural Equation Modeling (Schumacker & Lomax, 1996), smaller sample sizes can sometimes impact trends that LISREL 8.30 denotes. Additionally, larger samples better ensure an accurate estimation of the population.

The current study yielded consistent results with previous studies suggesting that DIT scores offer important information beyond verbal ability (Derryberry et al., 2000; Thoma et al., 2003; Thoma et al., 1999). Findings suggest that moral judgment as defined by the DIT is not reducible to crystallized intelligence as defined by the KAIT. However, crystallized intelligence does predict moral judgment and is involved in

making a moral judgment. It appears that we can trust the DIT as a valid assessment of moral judgment.

Certainly, findings favoring the arguments of Sanders et al. (1995) could have resulted in dire consequences where an objective approach to the measurement of moral judgment development is concerned. Furthermore, however, a major contribution of this study has to do with the implications where the assessment of popular psychological constructs as a whole are concerned. If DIT scores had been found to be reducible to KAIT scores, the queries of researchers such as Lykken (1991) that have questioned whether or not the measurement of popular psychological constructs is simply another way of measuring aspects of intellectual ability would have to have been taken more seriously. Certainly, it is conceivable that there are measurements of popular psychological constructs that are mainly the result of verbal ability (or other generalized abilities). At the same time, though, with this study it is suggested that such concerns should be addressed on a case-by-case basis and that any findings supporting queries such as Lykken's (1991) should not be generalized to all psychological measurements.

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Appendix A  
Demographics Survey



Demographic Questionnaire

DIRECTIONS: Please respond to the following questions by circling the number beside the most appropriate response, checking the appropriate selection, or filling in the blank.

- a. Are you: 1. male    2. female
- b. How old were you on your last birthday: \_\_\_\_\_
- c. What is your college classification? 1. Freshman    2. Sophomore    3. Junior  
4. Senior    5. Other (please name) \_\_\_\_\_
- d. What is your major? \_\_\_\_\_
- e. Optional: What is your ethnic orientation (i.e., Caucasian, Native American, African American, Asian American, Latino, etc.)? \_\_\_\_\_

## Appendix B

### Defining Issues Test (DIT)

## INSTRUCTION BOOKLET

**DIT**

DEFINING ISSUES TEST  
 University of Minnesota  
 Copyright, James Rest  
 All Rights Reserved, 1979

## Opinions about Social Problems

The purpose of this questionnaire is to help us understand how people think about social problems. Different people have different opinions about questions of right and wrong. There are no "right" answers to such problems in the way that math problems have right answers. We would like you to tell us what you think about several problem stories.

You will be asked to read a story from this booklet. Then you will be asked to mark your answers on a separate answer sheet. More details about how to do this will follow. But it is important that you fill in your answers on the answer sheet with a #2 pencil. Please make sure that your mark completely fills the little circle, that the mark is dark, and that any erasures that you make are completely clean.

The Identification Number at the top of the answer sheet may already be filled in when you receive your materials. If not, you will receive special instructions about how to fill in that number.

In this questionnaire you will be asked to read a story and then to place marks on the answer sheet. In order to illustrate how we would like you to do this, consider the following story:

**FRANK AND THE CAR**

Frank Jones has been thinking about buying a car. He is married, has two small children and earns an average income. The car he buys will be his family's only car. It will be used mostly to get to work and drive around town, but sometimes for vacation trips also. In trying to decide what car to buy, Frank Jones realized that there were a lot of questions to consider. For instance, should he buy a larger used car or a smaller new car for about the same amount of money? Other questions occur to him.

We note that this is not really a social problem, but it will illustrate our instructions. After you read a story you will then turn to the answer sheet to find the section that corresponds to the story. But in this sample story, we present the questions below (along with some sample answers). Note that all your answers will be marked on the separate answer sheet.

First, on the answer sheet for each story you will be asked to indicate your recommendation for what a person should do. If you tend to favor one action or another (even if you are not completely sure), indicate which one. If you do not favor either action, mark the circle by "can't decide."

Second, read each of the items numbered 1 to 12. Think of the issue that the item is raising. If that issue is important in making a decision, one way or the other, then mark the circle by "great." If that issue is not important or doesn't make sense to you, mark "no." If the issue is relevant but not critical, mark "much," "some," or "little" -- depending on how much importance that issue has in your opinion. You may mark several items as "great" (or any other level of importance) -- there is no fixed number of items that must be marked at any one level.

Third, after you have made your marks along the left hand side of each of the 12 items, then at the bottom you will be asked to choose the item that is the most important consideration out of all the items printed there. Pick from among the items provided even if you think that none of the items are of "great" importance. Of the items that are presented there, pick one as the most important (relative to the others), then the second most important, third, and fourth most important.

#### SAMPLE ITEMS and SAMPLE ANSWERS:

FRANK AND THE CAR: ☒ buy new car    ☐ can't decide    ☐ buy used car

Great    Some    No  
Much    Little

- |                                  |                       |                                  |                       |                                  |  |
|----------------------------------|-----------------------|----------------------------------|-----------------------|----------------------------------|--|
| <input type="radio"/>            | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input checked="" type="radio"/> | 1. Whether the car dealer was in the same block as where Frank lives.  |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/>            | 2. Would a used car be more economical in the long run than a new car. |
| <input type="radio"/>            | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/>            | 3. Whether the color was green, Frank's favorite color.                |
| <input type="radio"/>            | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input checked="" type="radio"/> | 4. Whether the cubic inch displacement was at least 200.               |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input type="radio"/>            | 5. Would a large, roomy car be better than a compact car.              |
| <input type="radio"/>            | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/> | <input checked="" type="radio"/> | 6. Whether the front connibilies were differential.                    |

	1	2	3	4	5	6	7	8	9	10	11	12
Most important item	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Second most important	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Third most important	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fourth most important	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Note that in our sample responses, the first item was considered irrelevant; the second item was considered as a critical issue in making a decision; the third item was considered of only moderate importance; the fourth item was not clear to the person responding whether 200 was good or not, so it was marked "no"; the fifth item was also of critical importance; and the sixth item didn't make any sense, so it was marked "no".

Note that the most important item comes from one of the items marked on the far left hand side. In deciding between item #2 and #5, a person should reread these items, then put one of them as the most important, and the other item as second, etc.

---

Here is the first story for your consideration. Read the story and then turn to the separate answer sheet to mark your responses. After filling in the four most important items for the story, return to this booklet to read the next story. Please remember to fill in the circle completely, make dark marks, and completely erase all corrections.

---

#### HEINZ AND THE DRUG

In Europe a woman was near death from a special kind of cancer. There was one drug that doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost to make. He paid \$200 for the radium and charged \$2,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about \$1,000, which is half of what it cost. He told the druggist that his wife was dying, and asked him to sell it cheaper or let him pay later. But the druggist said, "No, I discovered the drug and I'm going to make money from it." So Heinz got desperate and began to think about breaking into the man's store to steal the drug for his wife. Should Heinz steal the drug?

---

#### ESCAPED PRISONER

A man had been sentenced to prison for 10 years. After one year, however, he escaped from prison, moved to a new area of the country, and took on the name of Thompson. For eight years he worked hard, and gradually he saved enough money to buy his own business. He was fair to his customers, gave his employees top wages, and gave most of his own profits to charity. Then one day, Mrs. Jones, an old neighbor, recognized him as the man who had escaped from prison eight years before, and whom the police had been looking for. Should Mrs. Jones report Mr. Thompson to the police and have him sent back to prison?

---

#### NEWSPAPER

Fred, a senior in high school, wanted to publish a mimeographed newspaper for students so that he could express many of his opinions. He wanted to speak out against the use of the military in international disputes and to speak out against some of the school's rules, like the rule forbidding boys to wear long hair.

When Fred started his newspaper, he asked his principal for permission. The principal said it would be all right if before every publication Fred would turn in all his articles for the principal's approval. Fred agreed and turned in several articles for approval. The principal approved all of them and Fred published two issues of the paper in the next two weeks.

But the principal had not expected that Fred's newspaper would receive so much attention. Students were so excited by the paper that they began to organize protests against the hair regulation and other school rules. Angry parents objected to Fred's opinions. They phoned the principal telling him that the newspaper was unpatriotic and should not be published. As a result of the rising excitement, the principal ordered Fred to stop publishing. He gave as a reason that Fred's activities were disruptive to the operation of the school. Should the principal stop the newspaper?

---

#### DOCTOR'S DILEMMA

A lady was dying of cancer which could not be cured and she had only about six months to live. She was in terrible pain, but she was so weak that a good dose of pain-killer like morphine would make her die sooner. She was delirious and almost crazy with pain, and in her calm periods, she would ask the doctor to give her enough morphine to kill her. She said she couldn't stand the pain and that she was going to die in a few months anyway. Should the doctor give her an overdose of morphine that would make her die?

---

#### WEBSTER

Mr. Webster was the owner and manager of a gas station. He wanted to hire another mechanic to help him, but good mechanics were hard to find. The only person he found who seemed to be a good mechanic was Mr. Lee, but he was Chinese. While Mr. Webster himself didn't have anything against Orientals, he was afraid to hire Mr. Lee because many of his customers didn't like Orientals. His customers might take their business elsewhere if Mr. Lee was working in the gas station.

When Mr. Lee asked Mr. Webster if he could have the job, Mr. Webster said that he had already hired somebody else. But Mr. Webster really had not hired anybody, because he could not find anybody who was a good mechanic besides Mr. Lee. Should Mr. Webster have hired Mr. Lee?

---

#### STUDENT TAKE-OVER

Back in the 1960s at Harvard University there was a student group called Students for a Democratic Society (SDS). SDS students were against the war in Viet Nam, and were against the army training program (ROTC) that helped to send men to fight in Viet Nam. While the war was still going on, the SDS students demanded that Harvard end the army ROTC program as a university course. This would mean that Harvard students could not get army training as part of their regular course work and not get credit for it towards their degree.

Harvard professors agreed with the SDS students. The professors voted to end the ROTC program as a university course. But the President of the University took a different view. He stated that the army program should stay on campus as a course.

The SDS students felt that the President of the University was not going to pay attention to the vote of the professors, and was going to keep the ROTC program as a course on campus. The SDS students then marched to the university's administration building and told everyone else to get out. They said they were taking over the building to force Harvard's President to get rid of the army ROTC program on campus for credit as a course.

Were the students right to take over the administration building?

---

Please make sure that all your marks are dark, fill the circles, and that all erasures are clean.

THANK YOU.





GREAT  
MUCH  
SOME  
LITTLE  
NO

NEWSPAPER: ☐ Should stop it ☐ Can't decide ☐ Should not stop it

- ☐ ☐ ☐ ☐ ☐ 1. Is the principal more responsible to students or to parents?  
☐ ☐ ☐ ☐ ☐ 2. Did the principal give his word that the newspaper could be published for a long time, or did he just promise to approve the newspaper one issue at a time?  
☐ ☐ ☐ ☐ ☐ 3. Would the students start protesting even more if the principal stopped the newspaper?  
☐ ☐ ☐ ☐ ☐ 4. When the welfare of the school is threatened, does the principal have the right to give orders to students?  
☐ ☐ ☐ ☐ ☐ 5. Does the principal have the freedom of speech to say "no" in this case?  
☐ ☐ ☐ ☐ ☐ 6. If the principal stopped the newspaper would he be preventing full discussion of important problems?  
☐ ☐ ☐ ☐ ☐ 7. Whether the principal's order would make Fred lose faith in the principal.  
☐ ☐ ☐ ☐ ☐ 8. Whether Fred was really loyal to his school and patriotic to his country.  
☐ ☐ ☐ ☐ ☐ 9. What effect would stopping the paper have on the student's education in critical thinking and judgment?  
☐ ☐ ☐ ☐ ☐ 10. Whether Fred was in any way violating the rights of others in publishing his own opinions.  
☐ ☐ ☐ ☐ ☐ 11. Whether the principal should be influenced by some angry parents when it is the principal that knows best what is going on in the school.  
☐ ☐ ☐ ☐ ☐ 12. Whether Fred was using the newspaper to stir up hatred and discontent.

lost important item      ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 second most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 third most important      ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 fourth most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

GREAT  
MUCH  
SOME  
LITTLE  
NO

DOCTOR'S DILEMMA: ☐ He should give the lady an overdose that will make her die ☐ Can't decide ☐ Should not give the overdose

- ☐ ☐ ☐ ☐ ☐ 1. Whether the woman's family is in favor of giving her the overdose or not.  
☐ ☐ ☐ ☐ ☐ 2. Is the doctor obligated by the same laws as everybody else if giving an overdose would be the same as killing her.  
☐ ☐ ☐ ☐ ☐ 3. Whether people would be much better off without society regimenting their lives and even their deaths.  
☐ ☐ ☐ ☐ ☐ 4. Whether the doctor could make it appear like an accident.  
☐ ☐ ☐ ☐ ☐ 5. Does the state have the right to force continued existence on those who don't want to live.  
☐ ☐ ☐ ☐ ☐ 6. What is the value of death prior to society's perspective on personal values.  
☐ ☐ ☐ ☐ ☐ 7. Whether the doctor has sympathy for the woman's suffering or cares more about what society might think.  
☐ ☐ ☐ ☐ ☐ 8. Is helping to end another's life ever a responsible act of cooperation.  
☐ ☐ ☐ ☐ ☐ 9. Whether only God should decide when a person's life should end.  
☐ ☐ ☐ ☐ ☐ 10. What values the doctor has set for himself in his own personal code of behavior.  
☐ ☐ ☐ ☐ ☐ 11. Can society afford to let everybody end their lives when they want to.  
☐ ☐ ☐ ☐ ☐ 12. Can society allow suicides or mercy killing and still protect the lives of individuals who want to live.

lost important item      ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 second most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 third most important      ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫  
 fourth most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

PLEASE DO NOT WRITE IN THIS AREA



GREAT MUCH SOME LITTLE NO	WEBSTER: <input type="radio"/> Should have hired Mr. Lee <input type="radio"/> Can't decide <input type="radio"/> Should not have hired him
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	1. Does the owner of a business have the right to make his own business decisions or not?
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	2. Whether there is a law that forbids racial discrimination in hiring for jobs.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	3. Whether Mr. Webster is prejudiced against orientals himself or whether he means nothing personal in refusing the job.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	4. Whether hiring a good mechanic or paying attention to his customers' wishes would be best for his business.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	5. What individual differences ought to be relevant in deciding how society's rules are filled?
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	6. Whether the greedy and competitive capitalistic system ought to be completely abandoned.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	7. Do a majority of people in Mr. Webster's society feel like his customers or are a majority against prejudice?
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	8. Whether hiring capable men like Mr. Lee would use talents that would otherwise be lost to society.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	9. Would refusing the job to Mr. Lee be consistent with Mr. Webster's own moral beliefs?
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	10. Could Mr. Webster be so hard-hearted as to refuse the job, knowing how much it means to Mr. Lee?
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	11. Whether the Christian commandment to love your fellow man applies to this case.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	12. If someone's in need, shouldn't he be helped regardless of what you get back from him?

Most important item    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Second most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Third most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Fourth most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

GREAT MUCH SOME LITTLE NO	STUDENTS: <input type="radio"/> Take it over <input type="radio"/> Can't decide <input type="radio"/> Not take it over
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	1. Are the students doing this to really help other people or are they doing it just for kicks.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	2. Do the students have any right to take over property that doesn't belong to them.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	3. Do the students realize that they might be arrested and fined, and even expelled from school.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	4. Would taking over the building in the long run benefit more people to a greater extent.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	5. Whether the president stayed within the limits of his authority in ignoring the faculty vote.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	6. Will the takeover anger the public and give all students a bad name.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	7. Is taking over a building consistent with principles of justice.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	8. Would allowing one student take-over encourage many other student take-overs.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	9. Did the president bring this misunderstanding on himself by being so unreasonable and uncooperative.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	10. Whether running the university ought to be in the hands of a few administrators or in the hands of all the people.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	11. Are the students following principles which they believe are above the law.
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	12. Whether or not university decisions ought to be respected by students.

Most important item    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Second most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Third most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

Fourth most important    ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

PLEASE DO NOT WRITE IN THIS AREA

## Appendix C

### Attitudes Toward Human Rights Inventory (ATHRI)

# ATHRI

## Attitudes about public policies

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Your Identification number

--	--	--	--	--	--

[Directions: For each of the following statements, circle the number which best expresses your opinion: 1=Strongly Agree (SA), 2=Agree (A), 3=Uncertain (U), 4=Disagree (D), 5=Strongly Disagree (SD).]

SA A U D SD

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 1. Counselors should encourage girls to consider training to become pilots, carpenters, military officers, truck drivers and other usually male occupations.                |
| 1 | 2 | 3 | 4 | 5 | 2. Laws should be passed to regulate the activities of religious cults that have come here from Asia.   |
| 1 | 2 | 3 | 4 | 5 | 3. Citizens should be allowed to voice their opinions if they disagree with their government.   |
| 1 | 2 | 3 | 4 | 5 | 4. Welfare assistance should be limited to those who are really needy and not given to those who refuse to work.  |
| 1 | 2 | 3 | 4 | 5 | 5. Freedom of speech should be a basic human right.   |
| 1 | 2 | 3 | 4 | 5 | 6. The government should find ways to insure a good food supply for poor children in our large inner-cities.  |
| 1 | 2 | 3 | 4 | 5 | 7. Teenagers should be allowed to receive medical treatment without parental consent.   |
| 1 | 2 | 3 | 4 | 5 | 8. Occasionally it is reasonable to deny the right to vote to some groups; for instance to persons involved in un-American activities or to members of the Communist party. |
| 1 | 2 | 3 | 4 | 5 | 9. If we let religious fundamentalists teach in our schools they will try to indoctrinate our children.   |
| 1 | 2 | 3 | 4 | 5 | 10. Our nation should work toward liberty and justice for all.  |
| 1 | 2 | 3 | 4 | 5 | 11. If some of its students don't speak English, a school should add bilingual teachers even if doing so is expensive.  |
| 1 | 2 | 3 | 4 | 5 | 12. All people should have food, clothing, and shelter.   |
| 1 | 2 | 3 | 4 | 5 | 13. Professors in state-run universities should be granted academic freedom in their teaching, even if they teach Marxist ideas.  |
| 1 | 2 | 3 | 4 | 5 | 14. Books should be banned if they are written by people who have been involved in right-wing White Supremacy groups.   |
| 1 | 2 | 3 | 4 | 5 | 15. Churches should not change American Indians' beliefs.   |
| 1 | 2 | 3 | 4 | 5 | 16. It is fair to put to death a person who has willfully taken the life of another.  |

## Attitudes . . .

SA A U D SD

- | SA | A | U | D | SD |   |
|----|---|---|---|----|---|
| 1  | 2 | 3 | 4 | 5  | 17. In a democratic country, the press should be free from government censorship.   |
| 1  | 2 | 3 | 4 | 5  | 18. If an Equal Rights Amendment were adopted, it would disrupt society and the division of labor between males and females.                            |
| 1  | 2 | 3 | 4 | 5  | 19. If unemployed people cannot find work, they just are not looking hard enough, and therefore should not be supported by the state.                   |
| 1  | 2 | 3 | 4 | 5  | 20. Teachers who are homosexuals can be good role models for our children, just like anyone else.   |
| 1  | 2 | 3 | 4 | 5  | 21. People from Fascist countries should not be allowed to come here and spread their propaganda.   |
| 1  | 2 | 3 | 4 | 5  | 22. Publishers of school books should use inclusive language like <u>person</u> or <u>people</u> , and avoid <u>man</u> or <u>men</u> when appropriate. |
| 1  | 2 | 3 | 4 | 5  | 23. The basic rights in the constitution (the right to vote, to be presumed innocent until proven guilty, etc.) should be upheld for all citizens.      |
| 1  | 2 | 3 | 4 | 5  | 24. The full range of birth control information should be made available to the public at large.  |
| 1  | 2 | 3 | 4 | 5  | 25. People who oppose the government's taxation policies should not be allowed to organize demonstrations.  |
| 1  | 2 | 3 | 4 | 5  | 26. People should have freedom of religion (worship as they choose) and freedom of belief (believe as they choose).                                     |
| 1  | 2 | 3 | 4 | 5  | 27. Homosexuals shouldn't be hired for jobs requiring considerable contact with the public.   |
| 1  | 2 | 3 | 4 | 5  | 28. We should not waste time having costly trials for people we are 100% sure are guilty.   |
| 1  | 2 | 3 | 4 | 5  | 29. People should not be discriminated against because of their race, sex, religion, or handicap in a democratic country like ours.                     |
| 1  | 2 | 3 | 4 | 5  | 30. People who oppose the government's military policies should not be allowed to organize demonstrations.  |
| 1  | 2 | 3 | 4 | 5  | 31. Teachers who are fundamentalist Christians can be good role models for our children, just like anyone else.   |
| 1  | 2 | 3 | 4 | 5  | 32. A terminally ill and suffering patient should be able to have the doctor "pull the plug".   |
| 1  | 2 | 3 | 4 | 5  | 33. Police should not have to get search warrants when they are pursuing suspects with known criminal records.  |
| 1  | 2 | 3 | 4 | 5  | 34. People from Communist countries should not be allowed to come here and spread their propaganda.   |

## Attitudes . . .

SA A U D SD

- | SA | A | U | D | SD |  |
|----|---|---|---|----|--|
| 1  | 2 | 3 | 4 | 5  | 35. Books should be banned if they are written by people who have been involved in un-American activities.   |
| 1  | 2 | 3 | 4 | 5  | 36. Professors in state-run universities should be granted academic freedom in their teaching, even if they teach male superiority.                                      |
| 1  | 2 | 3 | 4 | 5  | 37. If they are quiet and well-behaved, students should be allowed to wear black armbands in school to protest a governmental policy or action with which they disagree. |
| 1  | 2 | 3 | 4 | 5  | 38. Abortion is any woman's right.   |
| 1  | 2 | 3 | 4 | 5  | 39. People in a free country should not have to worry about unwarranted intrusions by the government into their private lives.   |
| 1  | 2 | 3 | 4 | 5  | 40. Loyal citizens should be given full constitutional rights but disloyal citizens should not expect to be given all those rights.                                      |
| 1  | 2 | 3 | 4 | 5  | 41. It is legitimate for authorities to curtail the activities of groups protesting a governmental policy or action.   |
| 1  | 2 | 3 | 4 | 5  | 42. If we let atheists teach in our schools they will try to indoctrinate our children.  |
| 1  | 2 | 3 | 4 | 5  | 43. Occasionally it is reasonable to deny the right to vote to some groups; for instance to persons involved in militia groups with stockpiles of weapons.               |
| 1  | 2 | 3 | 4 | 5  | 44. The Roman Catholic Church should work toward allowing women to enter the priesthood.   |
| 1  | 2 | 3 | 4 | 5  | 45. People should be able to have a voice in how they deal with their own physical well-being, with their health and their illnesses.                                    |
| 1  | 2 | 3 | 4 | 5  | 46. Wire-tapping and surveillance are necessary even if they violate the law when danger to the public is suspected.   |
| 1  | 2 | 3 | 4 | 5  | 47. If busing is the best way to ensure that black students have the same educational opportunities as white students, it should be encouraged.                          |
| 1  | 2 | 3 | 4 | 5  | 48. Gun ownership is every citizen's right.  |

Appendix D  
Informed Consent

## INFORMED CONSENT DOCUMENT

**Project Title:** Exploring the Relationship Between Verbal Ability and Social Decision Making

**Investigator:** Kristy L. Jones, Graduate Student  
Psychology Department 270-535-3512 joneskl@wku.edu

**Faculty Sponsor:** W. Pitt Derryberry, Ph.D.  
Psychology Department 270-745-5250 pitt.derryberry@wku.edu

You are being asked to participate in a research project conducted through Western Kentucky University. The University requires that you give your signed agreement to participate.

The investigator will explain to you in detail the purpose of the research project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask him/her any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have.

If you then decide to participate in this research, please sign on the last page of this form in the presence of the person who explained the project to you. You should be given a copy of this form to keep. The information that follows details the parameters of this research project:

1. **Nature and Purpose of the Project:** The purpose of this research project is to determine whether verbal ability (e.g., ability that enables human understanding, reference, and usage of linguistic sources of information) plays a part in the determination of social decisions.
2. **Explanation of Procedures:** Your participation in this study involves your completion of four different questionnaires in two different sessions of data collection. You will complete three questionnaires in the first session. These questionnaires ask participants to report demographic information, their thoughts about various social dilemmas and situations, and their thoughts about human rights issues. Completion of these questionnaire ranges from 45 minutes to 1 hour.

In the second session of data collection, you will complete a popular assessment of intellectual ability in order to assess your verbal ability. Completion of this assessment can take up to 90 minutes. The primary researcher and other qualified Masters level psychology students will conduct all intellectual assessment under the supervision of Dr. Rick Grieve. It should be noted that the purpose of this assessment is solely for the research purposes of this project (see line 1). Information generated through intellectual assessment will only be available to the researchers of this project. Your signing of this form below indicates that you grant the researchers of this study to use this information for the purposes of this study only.

3. **Discomfort and Risks:** There is minimal or no risk to you in participating in this study. This study involves some self-disclosure, and a commitment of your time is also involved. The total time involved is stated above in Section #2.
4. **Benefits:** Your participation in this research will contribute to psychological research by helping to better understand how adolescents and young adults reason about social issues and themselves.
5. **Confidentiality:** Answers and information obtained in this study will remain anonymous and confidential and will be used solely for the purposes of this study. Additionally, answers and information obtained will not be identifiable as your specific answers. If you should become uncomfortable at any time, you have the right to discontinue your participation, and your answers will be removed from the study. You also have the option to refuse to answer any question and remain in the study. Only group data will appear in any reports of this study.
6. **Refusal/Withdrawal:** Refusal to participate in this study in full or in part will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate is free to withdraw from the study at any time.

If you have read and understand the parameters of this study and wish to participate, please sign below after reading the following statement:

*I understand the conditions set forth above, and I agree to participate in this study. I also understand that it is not possible to identify all potential risks in an experimental procedure and believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.*

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT  
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY  
THE WESTERN KENTUCKY UNIVERSITY HUMAN SUBJECTS REVIEW BOARD  
Dr. Phillip E. Myers, Human Protections Administrator  
TELEPHONE: (270) 745-4652



## Appendix E

### Human Subjects Review Board Approval

WESTERN KENTUCKY UNIVERSITY  
*Human Subjects Review Board*  
Office of Sponsored Programs  
104 Foundation Building  
270-745-4652; Fax 270-745-4211  
E-mail: [Phillip.Myers@Wku.Edu](mailto:Phillip.Myers@Wku.Edu)

In future correspondence please refer to HS04-056, January 30, 2004

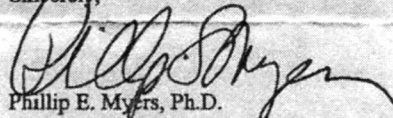
Kristy Jones  
Psychology  
TPH

Dear Kristy:

Your research project, "Exploring the Relationship Between Verbal Ability and Social Decision Making," was reviewed by the HSRB and it has been determined that risks to subjects are: (1) minimized and reasonable; and that (2) research procedures are consistent with a sound research design and do not expose the subjects to unnecessary risk. Reviewers determined that: (1) benefits to subjects are considered along with the importance of the topic and that outcomes are reasonable; (2) selection of subjects is equitable; and (3) the purposes of the research and the research setting is amenable to subjects' welfare and producing desired outcomes; that indications of coercion or prejudice are absent, and that participation is clearly voluntary.

1. In addition, the IRB found that: (1) **signed informed consent will be obtained from all subjects.** (2) Provision is made for collecting, using and storing data in a manner that protects the safety and privacy of the subjects and the confidentiality of the data. (3) Appropriate safeguards are included to protect the rights and welfare of the subjects.
  - a. Your research therefore meets the criteria of **Expedited Review** and is **Approved**.
2. Please note that the institution is not responsible for any actions regarding this protocol before approval. If you expand the project at a later date to use other instruments please re-apply. Copies of your request for human subjects review, your application, and this approval, are maintained in the Office of Sponsored Programs at the above address. Please report any changes to this approved protocol to this office. **A Continuing Review protocol will be sent to you in the future to determine the status of the project.**

Sincerely,

  
Phillip E. Myers, Ph.D.  
Director, OSP and  
Human Protections Administrator

cc: Human Subjects File HS04-056  
cc: Dr. Pitt Derryberry